ON-LINE APPENDIX

Repeatability Metrics

Equations used to calculate all of the repeatability metrics are calculated according to Barnhart and Barboriak.[18] For the following equations, the total number of subjects used is n and the number of replications is K. In this study, $n = 33$ subjects and $K = 2$ visits. Additionally, $\bar{Y}_i$ is the average over replication for subject i and $\bar{Y}_i$ is the total mean over all observations.

Subject Means

Within subject means (WMS):

A1) $$WMS = \sum_{i=1}^{n} \sum_{k=1}^{K} \frac{(Y_{ik} - \bar{Y}_i)^2}{n(K-1)}$$

Between subject means (BMS):

A2) $$BMS = \sum_{i=1}^{n} \frac{(\bar{Y}_i - \bar{Y})^2}{n}$$

Standard Deviations

Within subject standard deviation (wSD):

A3) $$wSD = \sqrt{WMS}$$

Between subject standard deviation (bSD):

A4) $$bSD = \sqrt{\frac{(BMS - WMS)}{K}}$$

Total standard deviation (tSD):

A5) $$tSD = \sqrt{\frac{BMS + WMS(K-1)}{K}}$$

Repeatability Coefficient

A6) $$RC = 2.27(wSD)$$

Upper and Lower 95% Confidence Interval for RC (RC_L and RC_U)

A7) $$RC_U = \sqrt{\frac{n(K-1)}{\chi^2_{n(K-1)}(0.975)}}$$

A8) $$RC_L = \sqrt{\frac{n(K-1)}{\chi^2_{n(K-1)}(0.025)}}$$

Within Subject Coefficient of Variation

A9) $$wCV = \frac{wSD}{\bar{Y}}$$